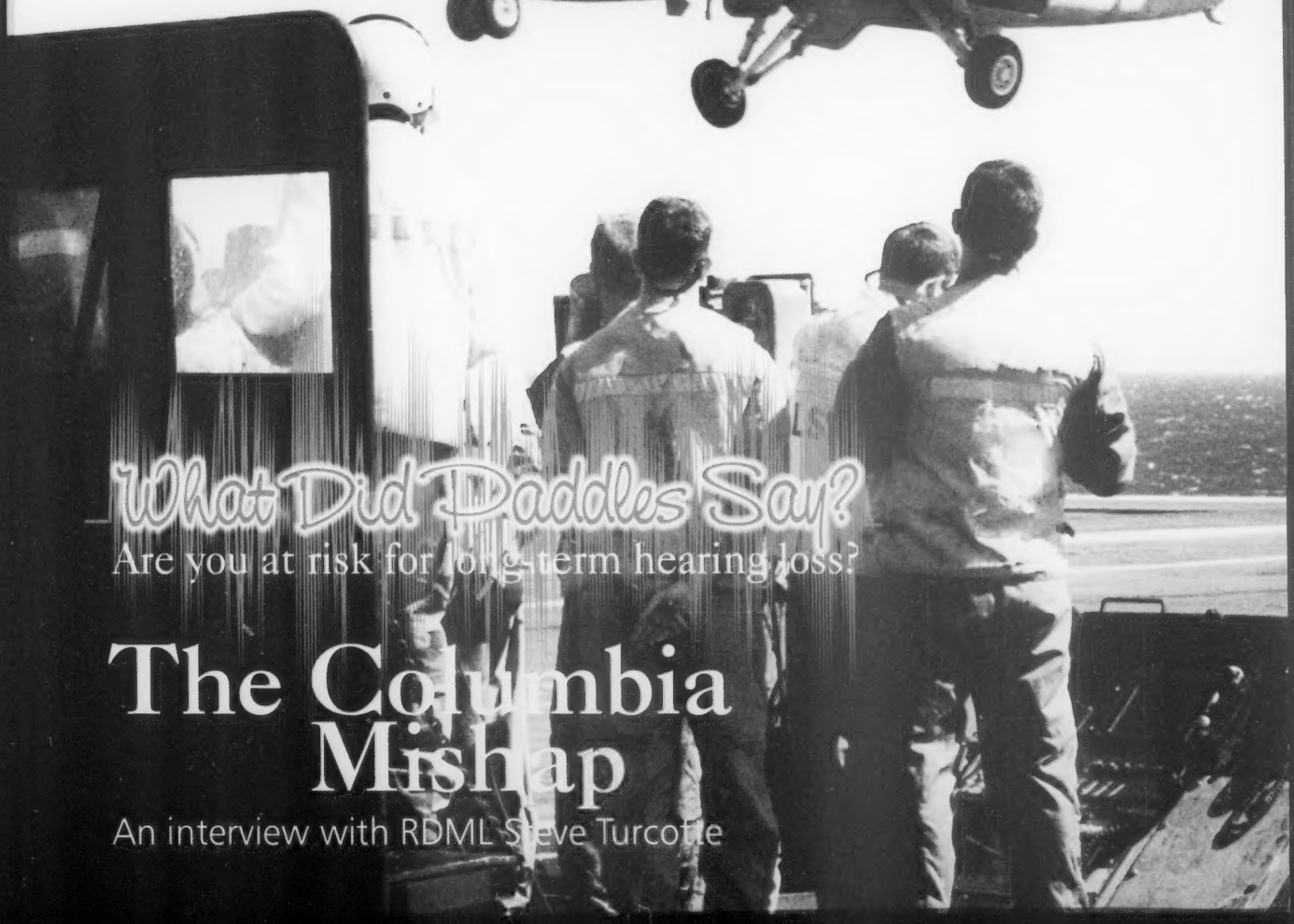
Reducing Mishaps by 50%

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

safetycenter.navy.mil • March-April 2004



What Did Paddles Say?

Are you at risk for long-term hearing loss?

The Columbia Mishap

An interview with RDML Steve Turcotte

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On the cover: Landing-signal officers from Carrier Air Wing One, aboard USS *George Washington* (CVN 73), assist an S-3 Viking. Photo modified by Allan Amen.

On the back cover: Pilots from VFA-37, NAS Oceana, returning from Operation Iraqi Freedom. Photo by Matthew J. Thomas.

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Mission Statement

Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness.

This magazine's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk.

We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous enough; the time to learn to do a job right is before combat starts.

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Features

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ORM Corner: Survival at Sea

By PR2 Ronald Beermünder

Cathy Maready's struggle for survival provides lessons for all aviators.

Departments

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Thanks for helping with this issue…

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REDUCING MISHAPS BY 50%

Culture Workshops

By Capt. Dave Quessenberry and LtCol. Rick Boyer, USMC

In 1996, following a string of high-visibility mishaps, the naval aviation Human Factors Quality Management Board (HFQMB) was chartered and tasked with reducing the number of human-factor flight mishaps by 50 percent before the turn of the millennium. One intervention strategy adopted by the board, on a trial basis, was a successful Air National Guard culture-assessment program run by Col. Alan Groben. Subsequently, the program was endorsed by the Air Board and has evolved into our current culture-workshop program.

The workshops are based on the principle that operational excellence exists on a foundation of trust, integrity, and leadership, created and sustained by effective communication. Each workshop is tailored to give individual commanders a snapshot of their unit's culture by listening to its members. Effectively employed, this program has become a powerful risk-management tool for identifying human-factor problems before they result in bent metal and broken bodies.

"Culture" includes a wide range of informal rules and attitudes that profoundly affect how we work and train. It is affected by events in our local communities, as well as by state, national, and international politics. Leadership styles, formal and informal and of past and present leaders, greatly influence the attitudes and operating rules that form a specific culture. Squadrons have formal and informal leaders, and these people permit certain attitudes and rules to exist, by the way they act and by what they tolerate.

Culture workshops are conducted solely for the benefit of each unit. Privacy of results—good, bad, or otherwise—is a key principle. All information collected is treated as confidential and remains within the command. The success of a workshop rests largely in the hands of the unit, and the unit's commitment to creating a sustained culture of operational excellence. Before the workshop, each member of the command should understand the upcoming workshop is not an inspection, and their candor and full engagement are the key elements to the workshop's success.

The workshop usually involves a three-person team. The unit hosting the workshop is responsible for obtaining a maintenance E-7/E-8 and a pilot or NFO (preferably an O-3) from a unit outside their direct chain of command to assist the facilitator. Ideally, these people should be professional, highly motivated, and possess solid leadership skills. After the kickoff brief and introductions, the workshop begins with individual visits and informal conversations conducted in the squadron spaces. Highly interactive group seminars composed of 10 to 15

people follow. Although squadrons sessions vary, there are generally separate seminars for E-4 and below, E-5 through E-6, E-7 through E-9, and the officers. They are led by a trained facilitator and last approximately two hours. Seminar attendees should represent a true cross-section of the command, and be prepared to fully participate in the process. The results of each group are folded into the subsequent seminars. A concluding leadership seminar compiles the results; any sensitive findings are briefed to the CO and XO separately.

Two online surveys offered by the School of Aviation Safety in Monterey—the CSA and MCAS—are now an integral and required part of the culture-workshop process. They are invaluable human-factors risk-identification tools, and should be completed before scheduling a workshop. (For an update on these surveys, turn to page 31.)

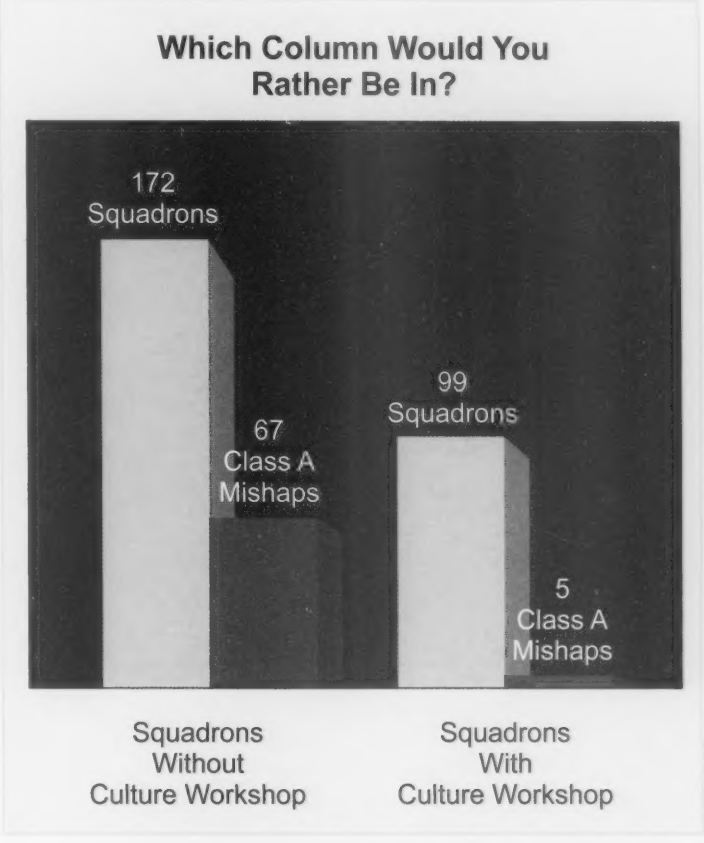
After the workshop, and in conjunction with the MCAS and CSA results, each unit will have a better understanding of the strengths and weaknesses of their underlying culture, as well as any organizational human factors that could pose a hazard to sustained operational excellence. Armed with that information, it is then incumbent upon the leadership, as well as the entire chain of command, to evaluate the risk, make appropriate risk decisions, implement controls, and then lead from the front!

In January 2003, a message from COMNAVAIRFOR required all deployable aviation squadrons to complete a Naval Safety Center sponsored culture-workshop during their interdeployment training cycle (IDTC), and non-deployable units to complete a workshop once during each two-year period. The milestone was to have unit safety officers make requests for any culture-workshops required during the next IDTC, or two-year period, directly to the Naval Safety Center. Since then, we have received 124 requests for culture-workshops; we have completed 51.

Does the process work?

During the last two years, Navy and Marine Corps squadrons had 72 Class A flight mishaps. During this period, 99 squadrons (36 percent of naval aviation) had culture workshops. Of those units, only five had Class A flight mishaps after a culture workshop, accounting for just seven percent of the total mishaps. Thus, 64 percent of the squadrons had 93 percent of the mishaps.

Capt. Quessenberry and LtCol. Boyer are with the Naval Safety Center.



Get on Board!
Find out more about culture workshops at:
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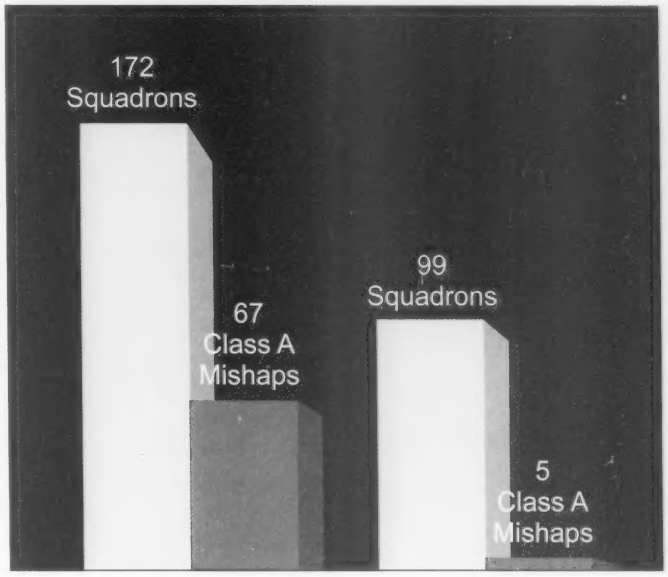
Which Column Would You Rather Be In?



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Resource Toolbox for Motor-Vehicle Safety

Summer is just around the corner. Time to wash and wax your car or truck, load up your buddies, roll down the windows, turn up the sound system, and: either 1)have a great day or 2)be moments away from tragedy. Your choice.

Check out the resources below, raise vehicle safety awareness in your unit, and have a safe summer. Whether you die in a plane crash or in a car, you're still dead.

Naval Safety Center
www.safetycenter.navy.mil/ashore/motorvehicle/toolbox.doc
• Leave/Liberty Statement • Pre-Trip Checklist/Brief/Counseling • Calling card for emergencies

www.navdweb.spawar.navy.mil
• The "safe ride program" is set up by commands establishing an agreement with local taxi companies. The agreement authorizes Sailors and Marines who have been drinking to call a taxi for a ride home without penalty, punishment or repercussion from their command.

AAA foundation for Traffic Safety Resources
www.aaafoundation.org/resources/index.cfm?button=links
• National Traffic Safety Organizations • Aggressive Driving • Drowsy Driving

S.A.F.E.-Stay Alive From Education (Street Smart Paramedics)
www.safeprogram.com
• Street Smart engages groups, rather than lecturing or preaching to them. Using factual information, actual medical equipment, and demonstrations involving a volunteer from the group, the paramedics provide a real-life look at the consequences of irresponsible actions.

Insurance Institute For Highway Safety
www.hwysafety.org/safety_facts/safety.htm
• The Institute conducts and publishes research on a wide range of highway-safety issues. Quick reference fact sheets by topic are provided on this web page.

Summer is often a tragic time for too many of our Sailors, Marines, their families and friends. The period between Memorial Day and Labor Day weekends is the **"critical days of summer,"** because the fatality rate in non-operational motor-vehicle mishaps is highest during this time of year. Start planning now to avoid fatalities this summer. As you look at the statistics, don't just look at the numbers. Each number represents a spouse, a parent, a friend, and, in most cases, a preventable statistic.

Deaths in Motor-Vehicle and Motorcycle Mishaps (During the critical days of summer)

	Navy	Marine Corps
1999	32	16
2000	20	19
2001	17	10
2002	32	25
2003	20	24
2004	?	?

Remember, one lost shipmate is one too many.

TOWARD THE GOAL...

Reducing mishaps by 50%

Continual Improvement

As we reflect on our aviation-safety posture, there are many positives, but there also is room for improvement. Based on surveys, culture workshops, and other interactions with fleet squadrons, the Safety Center aviation investigators and analysts share the following comments:

Our aircraft and equipment are well designed, and seldom let us down. Human factors, too often, are causal when a mishap occurs. In many instances, we lose shipmates and valuable assets while conducting basic, routine tasks. Mishaps occur when inexperience and complacency are interrupted by a surprise in the routine.

For helicopters flying low, the desert is a dusty environment and presents different challenges. Basic instrument-takeoff procedures will help you with takeoffs in this environment. And yes, the toll on airframes and engines is increased.

Take care of each other. Old guys, watch out for the new guys, as they don't have your experience. For the new guys, stick to the basics, so you can someday refer to yourself as an old guy. Get that back-in-the-saddle flight, practice your landings, and get some instrument time. Brief the scenario all the way through to the landings and fly what you brief.

A review of average flight times in some squadrons indicated low-time aircraft commanders were often significantly below average in flight-time distribution. This situation was more indicative of where squadrons were in the deployment cycle (most were in a down time after returning from OIF). However, this period is also when many mishaps occurred.

Manning levels are often driven by where a squadron is in the cycle. However, squadrons need to closely monitor their manning with the possibility of a compressed turnaround cycle and real-world commitments.

The squadrons that see real benefit from safety-suggestion programs are ones that tie safety suggestions to individual safety-award recognition. When COs reward good safety suggestions and practices, better quality and quantity of inputs are received, and the overall safety program is improved.

HOW ARE WE DOING?

Aviation (Rates = Mishaps Per 100,000 Flight Hours)

Class-A Flight Mishaps (FY04 thru 09 Feb)

Service	*Total/Rate*	*FY03 thru 09 Feb*	*FY04 Goal**	*FY05 Goal**	*FY01-03 Avg*	*Fighter/Attack*	*Helo*
USN:	3/0.83	8/2.04	14/1.24	10/0.88	20.3/1.76	2/2.35	0/0.00
USMC:	6/5.72	3/2.55	10/2.75	7/1.94	10.3/2.76	3/6.65	3/6.85

** Goals based on FY02 baseline.*
FY04/05 rate at or below goal.
FY04/05 rate above goal.

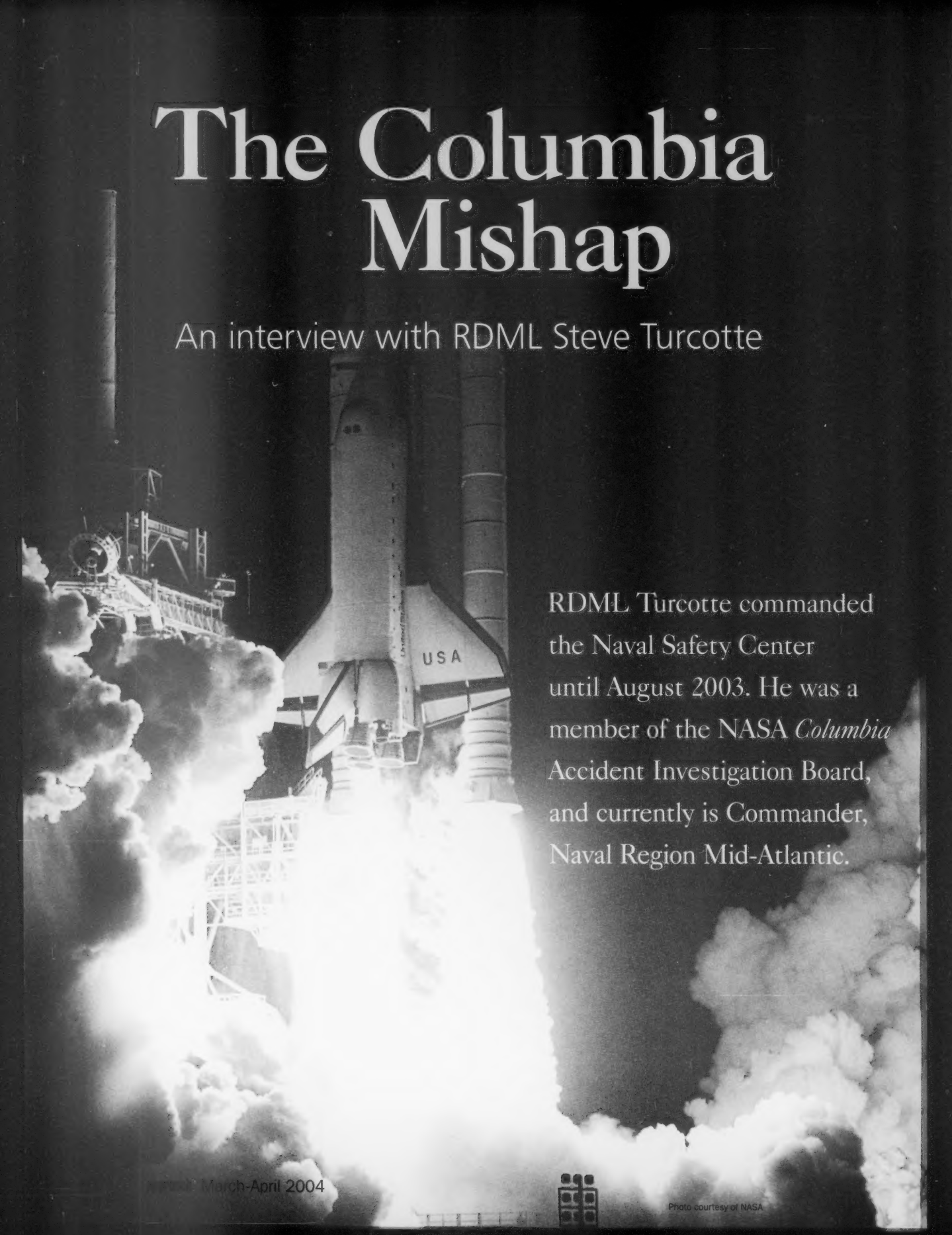
For current information on aviation statistics visit:
www.safetycenter.navy.mil/statistics/aviation/default.htm

Mishap-Free Milestones

HMM-265	15 years	60,000 hours
HSL-45	14 years	95,000 hours
VFA-195	21 years	90,000 hours
HC-11	12 years	100,000 hours
VFA-22	8 years	
VP-46	40 years	280,000 hours
VRC-30	28 years	175,000 hours

The Columbia Mishap

An interview with RDML Steve Turcotte



RDML Turcotte commanded the Naval Safety Center until August 2003. He was a member of the NASA *Columbia* Accident Investigation Board, and currently is Commander, Naval Region Mid-Atlantic.

Photo courtesy of NASA

How did you become a member of the Columbia *Accident Investigation Board?*

After the *Challenger* accident [on January 28, 1986], a standing investigation board was created, replicating the Navy's squadron mishap-investigation-board process. Representatives were selected from the Navy, Air Force, FAA, DOT's National Transportation Safety Board, and NASA's Ames Research Center. The board meets once a year for a training exercise. Right after the *Columbia* accident, the board was convened and Adm. Gehman was selected to chair the board. The investigation team ended up including approximately 120 people. The expertise of the people involved was incredible.

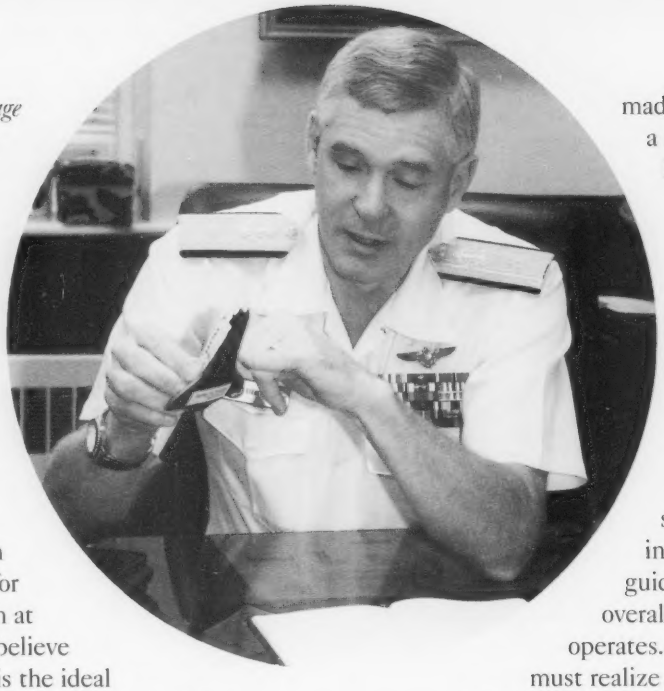
What were your responsibilities on the board?

We stated our preferences to Adm. Gehman. I asked to head up the maintenance portion of the investigation. I have had an extensive maintenance background through my operational experiences in naval aviation, and I felt this aspect of the mishap was going to represent a significant part of the final report. I spent my time commuting between Houston and Cape Canaveral, walking the floors and communicating with the engineers responsible for the different shuttle maintenance programs.

Secretary of Defense Rumsfeld has recently set a DOD-wide goal to reduce the aircraft-accident rate by 50 percent in the next two years. One of the primary causal factors revealed in the Columbia *Accident Investigation Report was that of a culture at NASA that helped to spawn the events leading to the mishap. Did your work on the board give you any insight into how Secretary Rumsfeld's goal could help to be achieved by changing the culture of naval aviation?*

I think we do a lot of things right in naval aviation and we really need to give ourselves a pat on the back. It took only a short time to realize that there were some serious communication issues going on at NASA between the engineers and the senior management. In naval aviation, when an aircraft is designed and built, the engineering process does not end there. Every time something goes wrong with a naval aircraft, it is well-documented and new procedures are put in place to deal with those engineering problems on a continuous cycle based on operational data. The same is not always true at NASA. The engineering analysis did not always keep pace with the operational deficiencies of the shuttle program. NASA lived in a world of extrapolated physics versus realistic physics. A problem at NASA would surface, the problem would be fixed, but then no system was put into place to ensure that problem was reevaluated periodically. From the professional engineers at NavAir all the way down to the Sailor carrying their individual MRC [maintenance requirement cards], naval aviation is well ahead of NASA in that respect. We don't rest on design criteria to ensure that systems are operating correctly. Another important observation I took away from the investigation is there needs to be a more inclusive Safety Center relationship with naval aviation to make sure the lessons we learn from maintenance and operational anomalies are communicated to the fleet.

Earlier this year, VAdm. Malone sent out a "Personal For" message to squadron commanding officers, asking for ideas on how to improve the Navy's accident rate. One of the require-



ments resulting from this message was the mandatory participation of Navy squadrons in the Naval Safety Center's culture-workshop program. Did your work on the Columbia *Accident Investigation Board influence your opinion on the potential effectiveness of this program for Navy and Marine Corps squadrons?*

My second big takeaway from the investigation process was the necessity for more hands-on intervention at the leadership level, and I believe that the culture workshop is the ideal tool to support this requirement. NASA lived in a "we've been doing it like this for years" safety culture. The knowledge of system deficiencies was right in front of them, but they could or would not see it. Squadrons can sometimes be caught up in this same type of thought process. There are warning signals all around, but nobody acknowledges them until it is too late. The culture-workshop program takes an experienced set of trained eyes from the outside and provides an intervention process for the CO to make sure that those hazards are identified and acted upon before they become mishaps.

The culture workshop's foundation statement reads: "Operational excellence is built on a foundation of trust, integrity and leadership, created and sustained by effective communication." Did any of these pillars of safety break down and allow the Columbia *accident to occur?*

I can give you an excellent example of integrity. At NASA, senior engineers were making go/no-go decisions on systems they were not technically qualified to make. These individuals were swayed by senior NASA management's desire to keep the program on schedule. It was like making a junior officer the CO. Risk decisions were not only made at the wrong level, but unqualified individuals were making them. This resulted in a terrible breach of integrity in the engineering decisions made at NASA. As for trust, a leader has to always know whom they can and cannot rely on for good advice. I sometimes use the old ploy of asking a question I already know the answer to. If I get an honest reply, then I know I can trust that person in the future. If the reply is less than sincere, then I know that individual needs further guidance. Leadership is the overall key to how a squadron operates. Commanding officers must realize they are always being looked at and emulated. A commanding officer's attitude and actions will ultimately decide the direction that a squadron takes.

Naval aviation meets all of the criteria of a "high-reliability organization," operating high-risk technology and relying on design and management to compensate for inevitable human shortcomings, thereby avoiding mistakes that under other circumstances would lead to catastrophe. The Columbia *Accident Investigation Report states, "NASA and the space shuttle program must be committed to a strong safety culture: a view that serious accidents can be prevented, a willingness to learn from mistakes, from technology, and from others, and a realistic training program that empowers employees to know when to decentralize or centralize problem-solving. The shuttle program cannot afford the mindset that accidents are inevitable because it may lead to unnecessarily accepting known and preventable risks." Does naval aviation's "can-do" culture create an atmosphere where no one person wants to say "no" and therefore leads our pilots and Sailors to unnecessarily accept known and preventable risks?*

The "can-do" spirit is the cornerstone of naval aviation and we should never give that up. However, "can-do" is not a stand-alone ethos. It must be tied with operational risk management to ensure that the reward is worth the risk. And we should never punish a "can't-do" answer. We need to continually educate our pilots

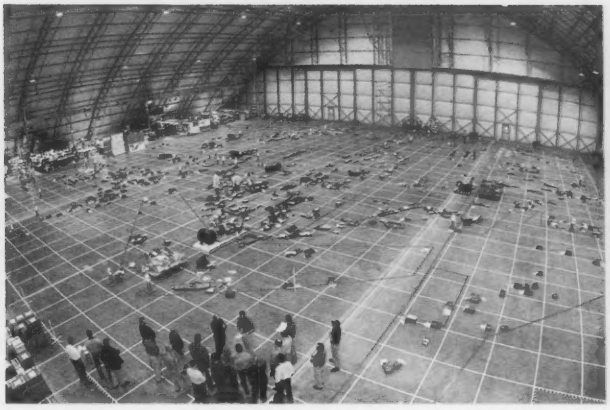


Photo by Rick Stiles

and Sailors that "can-do" needs support, and the risk management process is the perfect support structure for the "can-do" spirit.

The goal of the culture-workshop program is to provide commanding officers an outside "hazard identification" tool to satisfy step one of the five-step ORM process. The Navy has been learning about and using ORM for several years. Does this process hold more promise to achieve mishap reductions?

It has to. Risk management is the future of naval-aviation safety. From the squadron commanding officer to a junior airman, all individuals must be able to identify the hazards that are present and work their way through the ORM process. We must allow for failures and plan for them. Often, the smartest people are the hardest to change. During our NASA investigation, the young engineers accepted the board's recommendations much more easily than the seasoned veterans. In a squadron environment, commanding officers have to realize the best ideas may not always come from the most senior people. Lines of communication must stay open so the voice of the junior airman can be heard, as well as that of the department heads.

Naval aviation has been on a mishap-rate plateau for a number of years now, hovering between one and two class A mishaps per 100,000 flight hours. After serving as commander of the Naval Safety Center and being a member of the Columbia *Accident Investigation Board, what do you see naval aviation needing to do to break through this barrier?*

Three processes at the Safety Center can help bring down the accident-mishap rate. The first is our work with the School of Aviation Safety in Monterey through their maintenance climate assessment survey (MCAS) and the command safety assessment (CSA) automated questionnaires. These provide a good litmus test for squadron commanding officers to see if there are any potential problems in the squadron. The MCAS especially provides an unadulterated opinion from the junior airman. Secondly, the Safety Center's safety-survey program gives insight to the technical issues facing a squadron, ensuring all of the important programs are crossing their "i's" and dotting their "t's." The Safety Center has some very professional and experienced people who support the safety-survey process. They can identify the squadron's technical strengths and weaknesses quickly and efficiently. The final process that the commanding officer needs to take advantage of is the culture-workshop program. These folks come in and do a "non-inspection" evaluation of the squadron in an operating environment, and provide the skipper a snapshot of the culture through a set of well-trained and experienced eyes. If each individual skipper uses these tools effectively, naval aviation should be able to break through the current plateau.

The interview was conducted by Capt. George Platz, LtCol. Rick Boyer, USMC, and Derek Nelson of the Naval Safety Center

Crew Resource Management

Situational Awareness
Assertiveness
Decision Making
Communication
Leadership
Adaptability/Flexibility
Mission Analysis

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Calm Before the Storm

By Lt. Vince Johnson

I launched on a warm, starry night on a SAREX, with my squadron maintenance officer and one of our more senior AWs. We took our time flying down the St. Johns River, through Jacksonville, enjoying the city lights along the way. After clearing NAS Jacksonville's airspace to the south, I ran my crew through a couple of SAR scenarios, and both pilots rebased their night Doppler-approach quals—piece of cake, I thought. We had time for another river run and a few laps in the pattern before we called it an evening.

As we climbed to let base know we were headed back, a nasty surprise hit me. The SDO had been trying to recall us because of a fast-moving storm system working its way from the north. My AW turned on the radar, and all three of us looked intently as our gadget painted a huge wall of storms coming at us.

A smart man would've flown the five miles to NAS Jax and sat this one out, but I've never claimed to be a smart man. Dinner, Seinfeld, and my bed were calling me. I think everyone in the helicopter heard the same tune because, just then, the MO said, "I think we can beat it." After a big affirmative from our AW, we were headed back up the river as fast as our Seahawk could take us.

As we cleared downtown Jacksonville, the clouds were bearing down on us. The green radar display showed we weren't going to win this race. Did I decide to turn back for NAS Jax? Nah! I decided to call approach and request VFR direct to Mayport. This

plan involved leaving the safety of the river, but cutting the corner would be quicker. Besides, the Jacksonville area is flat, no big towers (except downtown) exist, and nobody else is dumb enough to fly in this weather. We pressed on.

We just had gotten the helo pointed to the head of the TACAN needle when we ran into the storm—a great big rain-and-lightning fest, the kind that slaps your plane and loosens fillings.

We already had descended to 400 feet to clear the clouds. Mayport was about nine miles away on the DME, but I couldn't see anything. "Turn around," I thought. I considered turning, but that would mean flying back though the storm, with all the towers and buildings in the city.

We were cinching down our harnesses and talking about options when some benevolent being whacked me upside the head. We were flying over Craig airfield, about five miles to the west of Mayport! Those runway lights were the only things I could see, and that was through the chin bubble. We quickly called Craig and requested a full stop. Tower granted us any runway and any way we could get there. I think the tower rep then ran to get a video camera.

I turned south to set up for a left downwind. My airspeed dropped, but we sure were hauling the mail over the ground. Turning to final, the wind gave us a sweet IAS (for a helo), although we hardly were moving. I could make out the runway lights but not the ground. I set up to land somewhere between the lights, checked the VSI, and waited for terra firma. Contact, collective down, and we taxied clear of the runway.

We held on the taxiway, unable to see. Shutting down was not an option—the winds were way out of limits. We passed our time by betting on getting hit by lightning or getting blown over. After 30 minutes, the weather cleared enough for us to hop over to NS Mayport—home sweet home.

You never are too close or too far from home to catch get-home-itis. Those of you shaking your heads probably can think of a time when you pressed home, rather than diverted for weather, fuel, or mechanical problems—it's natural. This flight is one case where experience allowed us to make the wrong decision.

Lt. Johnson flew SH-60Bs at the time of this incident, he currently flies with VAQ-141.

Photo by Matthew J. Thomas. Modified.

Photo composite

A CLOSE CALL AT 300 FEET

By ADCS(AW/NAC) Kevin Smith

It was a beautiful summer day, and our P-3 crew was scheduled for a 0730 brief, a 0800 preflight, and a 1000 takeoff. I was giving a squadron flight engineer a proficiency flight, and the XO was giving a patrol-plane-commander check flight to one of our upgrading pilots. The weather absolutely was gorgeous.

The preflight went well, except for the multiple gripes in the aircraft-discrepancy book (ADB) concerning the radios: The VHF could

receive but not transmit; the pilot easily could select UHF1 but had difficulty selecting UHF2; the copilot could select UHF1 or UHF2, but he really had to "mash" the buttons on the jackbox to make a radio selection. We planned to stay in the local area, so we didn't think the radio problems were an issue.

With the preflight, maintenance paperwork, and the planeside brief concluded, we manned the mighty Orion, ready to conduct training. Engine starts, taxi and takeoff went without a hitch. What a beautiful day to go flying: not a cloud in the sky, visibility virtually unlimited, and the temperature pushing 75 degrees Fahrenheit. The flight engineer answered my questions, and the pilot answered the XO's questions.

The XO gave the flight-station crew a simulated malfunction. I backed up the XO on the radio calls and VFR scan, while listening to our two aviators discuss the situation and the applicable NATOPS procedures. ATC cleared us to 1,700 feet on runway heading, and they called "radar contact" as we passed 1,000 feet. It would be a great day—flying early, no one else in the pattern—it doesn't get any better.

At 1,700 feet, we started to turn east as directed, and the two upgrading aviators discussed their plan of action for the simulated malfunction. I paid attention to the scenario but continued to listen on the radios and periodically to scan outside. Then it happened. I just had looked up to scan when I saw a Cessna at our altitude about 300 feet in front of us (ATC tapes later confirmed the close call). The plane filled our windscreen. I could not get out a clock position but just simply yelled, "Traffic straight ahead!"

I think the Cessna pilot saw us about the same time we saw him. He banked sharply to his right, and we sharpened our turn to our right for a port-to-port pass.

"Where the hell did he come from?" asked the pilot.

The XO quickly called the controller and told them of a near midair collision. They said they had no traffic on their screen but then immediately reported pop-up traffic. I called our aft observer and had him set condition five in the flight station. Our observer wore a headset, listened to the traffic calls, and became another "pair of eyes." We had to collect ourselves and regroup after our close call.

What could we have done differently? First, if you have radio problems, get them corrected. It is better to have two good UHFs, or one good UHF and VHF, than to be tied by multiple problems with all three, causing unnecessary distractions. The radio problems didn't cause the near-midair, but they didn't help.

Second, do not get lulled into believing you are alone out there. Radar had us, but their coverage is only as good as they can see. This day was one of the first few days of good weather, and many general-aviation aircraft took advantage of it just like we had. The "big sky, little airplane" theory doesn't replace a good VFR scan. We had a good scan, but we didn't discuss the increase in VFR traffic because of the terrific weather.

Third, know your area of operation. This guy probably popped up from one of the little grass airfields in the area. I now know of three such fields close to our homeplate. They're not on our FLIP charts, but, nonetheless, they exist. This info now is in a local-flying-area folder on the flight officer's desk.

Last, use your observer or off-duty pilot to assist in keeping a lookout in front, while the IP and IFE instruct down low. Another set of eyes may have seen the Cessna earlier, so we could have reacted sooner.

We came close, a little too close for comfort.

Senior Chief Smith is a senior flight engineer with VP-26.

What Did Paddles Say?

By LCdr. Thomas A. Jones

My trusty S-3B was rolling in the groove behind USS *Theodore Roosevelt* (CVN 71). The weather was not good, and the carrier was headed into a thunderstorm. Winds pushed 40 knots, and the deck was moving moderately.

My COTAC called the ball, and paddles answered with what I thought was "Roger ball." Paddles then said something else.

In the brief moment that I asked my COTAC, "What did he say?" the aircraft settled cleanly onto the ace. As I throttled back after stopping, my old-hand COTAC calmly replied, "Power."

I am a Cat I in my squadron; I also am the oldest Cat I in the fleet. With this dubious distinction comes some of nature's pranks and downfalls; one of the most annoying is the slow degradation of my hearing. I have done most of the right things to protect my hearing. I have worn soft earplugs under my helmet since I was in flight school. I wear hearing protection at home when working with power tools or mowing the lawn. Yet, as my time flying Navy jets approaches the double-decade benchmark, I find it more difficult to hear. I long since had been accustomed to turning up my ICS and UHF volumes all the way, much to the dismay of aircrew who manned the jet after me. When I removed the soft earplugs, I found the ambient noise level was so high I even had less ability to understand the radios and ICS. Now came a new obstacle: the communications-improvement program (CIP) of the S-3B.

I flew only non-CIP birds while going through the FRS, and my first experience with CIP came at VS-32. CIP gives the S-3B many wonderful and very useful capabilities, such as VHF, marine band, and satcom. Everyone

knows that while the great gods of modifications giveth, they also taketh away. In the case of CIP, it comes with the price of significantly reduced audio output to the aircrew, making it hard to hear in the cockpit.

After my politically correct but still stern debrief from paddles about my failure to respond to his power call, I went to sleep wondering how I was going to overcome my current hearing dilemma. My answer came the next morning while on FOD walkdown when I happened across a NavAir physiologist, who, to my surprise, is on a team working to improve hearing protection and comm.

"So, how hard can it be to remedy the S-3B CIP comm woes and prevent some noise-induced hearing loss?" I asked.

My new NavAir buddy sent me information about two different earplugs they have been looking at. One, developed by the Army, is called CEP; the other, being developed by the Air Force, is called ACCES.

CEP is similar to the soft, foamy earplugs we have worn for years, but it has radio comm piped through its core to the inner-ear canal. ACCES is similar to a hearing aid in appearance.

I immediately did more research and tried both earplugs. I visited the Air Force site developing ACCES. I immediately liked ACCES—the sound attenuation seemed significantly higher, and, unlike the CEP, you can't screw up the installation of an ACCES earplug. It only goes in one way—the right way. I learned foam earplugs are good for about 22 dB of noise attenuation, if they are installed properly (the earplug end is almost flush with your ear-canal opening). Most people don't get them in deep enough, and attenuation quickly drops off as more of the earplug hangs out.

ACCES is not without its shortcomings. It's custom made, which immediately sends up logistics flags. Who makes them? Where? How much do they cost? How long does it take to get your custom earplugs? How long do they last? What happens if they are lost or broken? How do I clean them? They're just not like grabbing a pair of foamies from the box. To top it off, ACCES is still being developed and tested on Air Force F-22 crews and has not been through all the mandatory flight-safety tests.

I wear hearing protection at home when working with power tools or mowing the lawn. Yet, as my time flying Navy jets approaches the double-decade benchmark, I find it more difficult to hear.

So I wouldn't say I'm all the way back to square one. I do know we have a problem with the S-3 CIP, especially with older fleet bubbas like me. But, I know we have potential solutions.

I asked my NavAir friend how we get this stuff approved through the catacombs. NavAir is pushing from their side, but there's little pull coming from our side—the fleet. Apparently, it

On the Horizon

Navy researchers at San Diego Naval Medical Center have developed a pill to protect hearing. "The hearing pill" is going through clinical trials and holds promise in the prevention of and recovery from hearing loss. Because the first human study has just started, sufficient time is needed to analyze the data and validate effectiveness in humans.

Although the pill is available commercially, it has not been tested in the aviation community and is not authorized for use.

Did you know?

- Health standards say you shouldn't be exposed to noise above 85 dB for more than eight hours a day, and this should be followed by 16 hours of quiet recovery time.

You do the math:

  - External noise from naval jets ranges from 130 to 150 dB (measured 50 feet from the aircraft, approximately 45 deg. or 135 deg. off the nose/centerline).
  - Noise in a jet cockpit ranges from 115 to 130 dB.
  - Today's double protection of earplugs and earmuffs provides approximately 30 dB of attenuation.
  - With just one or two high-performance jet launches, a final checker will exceed the safe daily noise-exposure limit.
  - Following long flight-deck duty days exposed to jet-aircraft noise, there are few, if any, quiet spaces below 85 dB for flight-deck crews' hearing to recover. The result is flight-deck crews often are exposed 24 hours a day to noise levels above the recommended limit.

- Your earplugs and earmuffs are nearly the same design worn 30 to 50 years ago.
- The No. 1 Veteran Administration disability claim is hearing loss. All services combined, claims totaled over $442M in 2002, over $5.5B since 1977, and the trend is upward.
- Navy jet-noise-induced hearing loss generally starts in the frequencies you need to hear speech. Your ability to discriminate consonants, as opposed to vowels, goes first. Loss of the ability to discriminate between consonant sounds like "s" and "f" make it more difficult to understand what's being communicated.

Next time you go for your annual audiogram, ask the audiologist to explain your results. Keep a personal copy of all your audiogram records.

all starts with the pilots, aircrew and maintainers documenting the problem. My plan, after writing this article, is to complete a hazrep, and I encourage you to do the same. The sooner our decision-makers know we have a safety-of-flight issue, the sooner we may get better hearing protection and comm.

If you don't think this problem affects you, think about the happy hours you attended in Pensacola or Oceana where many retired aviators were present. The older guys (WW II and some Korean vets, my father one of them) all had hearing aids in both ears. They flew around in TBFs, SBDs, SB2Cs, F4Fs, and the granddaddies of noise, the F6F and F4U. They took off and landed with the canopies open, with no hearing protection other than the leather flight helmet. The Korean War vets who ushered in the jet age and the Vietnam-era aviators who flew with the first version of our modern hard-plastic helmet enjoyed a modest increase in hearing protection. Most of those gents did not wear hearing aids; they just spoke really loud.

Wouldn't it be nice if, in the years to come, when we're gathered in the T-Bar or talking in the I-Bar, we're not the guys wearing hearing aids or talking really loud?

LCdr. Jones flies with VS-32.

Can You Hear Me Now?

The Importance of Reporting Radio-Communication Problems

By Valerie Bjorn and Jim Wilt

The TV show "20/20" recently did a piece on bystander apathy—a sociological phenomenon that occurs when a group of people knows something's wrong, but all stand by and do nothing because they think someone else is fixing it. The question for us today is whether bystander apathy is happening in naval-aviation radio communications.

We are talking about communications you missed because you couldn't hear what was said—about having a hearing loss that does not improve over time, about taking corrective action to help prevent further hearing loss, and to improve the ability to hear important communication that may prevent accidents.

Why is hearing protection such a big issue? Missed communication can be hazardous and expensive. In a recent Class B aviation mishap, the aircraft-mishap board faulted the pilot for missing a radio call advising him of an aircraft fuel-control problem. Because the pilot missed the auditory warning, the developing emergency inside the aircraft was handled wrong, resulting in the mishap.

A quick analysis of this mishap demonstrates how a radio call might have been missed. The noise in the cockpit is approximately 125 decibels during climb and cruise and 130 decibels during takeoff and landing. The pilot wore a properly fitted helmet that provided about 30 decibels of hearing protection across all hearing frequencies.

around on the roof of a carrier? Consider these points:

- How many people do you know on the flight deck who don't wear earplugs?
- How many LSOs never wear hearing protection so they can hear comms?
- How many people in their 20s and 30s do you know who joke about lost hearing—who gave up good hearing to get the job done?
- How many people do you know who crank up their radio to max volume and still strain to hear?

Navy technology, health, safety, and medical experts are working closely with Air Force and Army counterparts to improve radio communications and hearing protection. However, the expert's efforts are hampered because no requirement exists for better hearing protection percolating up from flight-deck personnel. No reports are coming in from these personnel stating that a hearing problem exists, although veterans administration hearing-disability claims show there's a significant problem and it's getting worse each year.

The question for us today is whether bystander apathy is happening in naval-aviation radio communications.

The aircraft's auxiliary-communication-navigation-identification panel produces sound levels up to 125 decibels. Average human speech is about 60 decibels, so the 125 decibels easily should have been heard. The combination of engine noise, the inability of the helmet and earplugs to reduce engine noise while letting through warning sounds, most likely resulted in the pilot missing the auditory cautions and warnings. Better sound-dampening equipment probably would have improved communication quality.

Let's look at this hearing problem a little more in depth. What about the Sailors running

You are part of the solution. You have to tell NavAir about a problem, so they can fix it. If you are having trouble hearing radio communications, or if you are concerned about jet-noise-induced hearing loss, fill out a hazard report (hazrep), which is explained in OPNAV Instruction 3750.6R, "Naval Aviation Safety Program." You can report anonymously; don't be a bystander. Whether you are an E-2 or an O-5, take the initiative to report your hazardous situation and document the problem. Your hazrep will help establish an official, documented Navy requirement that will aid us is getting better technology to you, to your peers, and to the aviators behind you.

Ms. Bjorn and Mr. Wilt are with Naval Air Systems Command.

While climbing during day VFR pattern work at NAF Atsugi, Japan, Lt. Oliver Stormer, the pilot at the controls, felt the port power lever vibrate and the aircraft swerve to the left. The copilot and aircraft commander, LCdr. Paul Crump, saw the port fuel flow and IHP fluctuate erratically. Lt. Stormer immediately executed emergency procedures for RPM/IHP/TMT/fuel-flow fluctuations, but the indications, vibration and noticeable swerve, persisted.

With the port power level at flight idle, the port engine showed minus 40 indicated-shaft horsepower. Unable to control the engine HP/RPM or propeller-blade angle, LCdr. Crump had Lt. Stormer secure the port engine and feather the propeller.

LCdr. Crump declared an emergency with tower and requested the short-field-arresting gear be rigged. As the pilots were dealing with the malfunctioning engine/propeller, the mission commander, Lt. Kaz Hashigami, backed them up by reviewing the pocket checklist emergency procedures. He also told other area aircraft the runway at Atsugi would be fouled following the field arrestment.

With Lt. Ben Finney in the LSO shack providing glideslope assistance, Lt. Stormer flew a single-engine approach with crosswinds (21 knots) at the edge of NATOPS limits to a successful field arrestment.

Left to right: Lt. Kaz Hashigami , LCdr. Paul Crump, Lt. Ollie Stormer, , and Lt. Ben Finney.

BRAVO Zulu

The crew of Unsung 27, assigned to Marine Heavy Helicopter Squadron 462, was the lead aircraft in a section of two CH-53E helos. They launched from Ali Al Salem, Kuwait, at 2300 on a low-light-level, night-combat mission, using night-vision devices (NVDs). Their task was to resupply a forward arming and refueling point (FARP) in support of Operation Iraqi Freedom.

The helicopter aircraft commander (HAC) used his external cargo hook to pick up a bundle of three fuel bladders, weighing 10,500 pounds, and led the section of two helos into Iraq. The automatic-flight-control system (AFCS) failed 30 minutes into the flight and 90 miles from Ali Al Salem. The aircraft oscillated, and the load started to swing, which caused the aircraft to become unstable. Despite a missile threat in the area, the pilots were forced to climb. The HAC struggled to bring the aircraft under control while he dealt with spatial disorientation induced by the lack of visible horizon and the swinging load. The desert terrain provided no horizon as a reference. The HAC relied solely on the instruments to react to the oscillating load.

The crew considered jettisoning the fuel bladders to regain control of the aircraft. As the HAC worked the flight controls, the copilot focused on the AFCS failure. Meanwhile the crew chiefs monitored the fuel bladders and provided a verbal description of the swinging load. The crew chief's role was crucial as the pilots struggled to get the aircraft under control. The excellent work of the crew, combined with the HAC's NVG flying experience, brought the aircraft under control, narrowly avoiding a crash.

With limited visibility and without AFCS, the aircrew flew 90 miles back to Ali Al Salem while fighting aircraft-control problems and spatial disorientation. The crew dropped off the fuel bladders, landed, shut down, and signed out a different aircraft. They then picked up the bladders and completed the mission, returning to base at 0700.

Left to right: Capt. Robert M. Rich (copilot), Cpl. Michael J. Sablar (crew chief), SSgt. Michael J. Brady (crew chief), HM2 Robert H. Davenport (gunner-observer), Capt. Andrew F. Byrd (HAC).

I've Lost My

Though this flight was my first without a qualified radar-intercept officer (RIO) in the back seat, I had flown with a number of aviators who had very little Tomcat experience.

By Lt. Geoff Vickers

My squadron and air wing were detached to NAS Fallon, Nevada, for strike training. Most of us attended lectures all day, but I was tasked with giving the battle-group-air-warfare commander an orientation flight in the F-14D. As skipper of the cruiser in charge of the battle group's air defenses, he had been spending time with the air wing to better understand how we conduct our missions. He had observed a number of the strike events through the tactical-air-combat-training system (TACTS) replays, and he had flown with the E-2C and EA-6B squadrons. He was proud that the Prowler guys hadn't been able to make him sick.

My job was to demonstrate the Tomcat's performance and tactical capabilities. Though this flight was my first without a qualified radar-intercept officer (RIO) in the back seat, I had flown with a number of aviators who had very little Tomcat experience.

The captain arrived at the squadron a half-hour before the brief to receive his cockpit-orientation lecture and ejection-seat checkout. Once in the ready room, we briefed the flight with our wingman. I covered the administrative and tactical procedures in accordance with our squadron's standard-operating procedures (SOP).

I told the captain that after the G-awareness

RIO

maneuver, we would do a quick inverted check to verify cockpit security. Looking back, I should have recognized his anxiety when he mocked me and said, "Just a quick inverted check?" then laughed. I didn't realize hanging upside down with nothing but glass and 11,000 feet of air separating you from the desert floor might not be the most comfortable situation in the world for a surface-warfare officer.

I continued the brief and told the captain we would do a performance demo and a couple of intercepts, followed by tanking from an S-3. I told him if, at any point, he felt uncomfortable, we would stop whatever we were doing, roll wings level, and take it easy. I was determined to avoid the temptation to intentionally make him sick and uncomfortable.

The start, taxi, and takeoff were normal. We joined with our lead and did the standard clean-and-dry checks. We pressed into the working area and assumed a defensive combat-spread formation in preparation for the G-warm. I told him what was happening, and he seemed to remember the sequence of events from the brief. After we completed the checks, I asked him, "Are you ready for the inverted check? Do you have everything stowed?"

"All set" was the last thing I heard him say.

I checked the airspeed and confirmed it was above the 300 knots recommended to do

the check, and I rolled the aircraft inverted. I decided not to really put on a lot of negative G and unloaded to about .3 to .5 negative G's—just enough to make anything float that wasn't stowed properly. If he was uncomfortable in such a benign maneuver, it would be better to find out then, rather than when we were racing toward the earth during a radar-missile defense.

As I started to push on the stick, I heard a loud pop, followed by a roar. The cockpit filled with smoke, and we suddenly lost cabin pressure. I first thought a catastrophic environmental-control system (ECS) had failed. I said to myself, "This is new. I've never even heard of something like this happening."

Time compression turned the next few seconds into an eternity. I knew the first thing I had to do was to roll the jet upright and assess the situation. About three seconds after the first indication of a problem, I had the jet upright and knew exactly what had happened.

I transmitted, "Lion 52. Emergency, my RIO just ejected."

I was yelling into the mic, thinking I would have to make all the calls in the blind. I never would have thought I easily could communicate with all the noise of flying at 320 knots without a canopy.

As I turned the jet to try and get a visual of my wayward passenger, Desert Control asked, "Understand your wingman ejected?"

"Negative, my RIO ejected. I'm still flying the plane."

I almost said I was far from OK, but I just told them I was all right, except I was flying a convertible.

"OK. Understand your RIO ejected. You're flying the plane, and you're OK?"

I almost said I was far from OK, but I just told them I was all right, except I was flying a convertible. I was relieved to see a good parachute below me, and I passed this info to Desert Control. Very quickly after the emergency call, an FA-18 pilot from the Naval Strike and Air-Warfare Center, who also was in the area, announced he would take over as the on-scene commander of the search-and-rescue (SAR) effort.

I told my wingman to pass the location of the captain because I could not change any of my displays. Once my wingman started to pass the location, I started dumping gas and put the needle on the nose back to NAS Fallon.

One of our air-wing SH-60s was in the area and responded, along with the station's UH-1N. The captain was recovered almost immediately and transported to the local hospital for treatment and evaluation.

The only F-14D boldface procedures for a canopy problem include placing the canopy

handle in "boost close" position and then moving the command eject lever to "pilot." Obviously, the canopy already was gone, so that lever action didn't apply, and, if the command-eject lever wasn't already in "pilot," as briefed, I also would have been ejected.

I slowed the aircraft and lowered my seat because that's what I remembered from the rest of the steps in the checklist. However, after sitting at eye-level with my multi-function display for about 30 seconds, I thought it would be more prudent to see outside, so I raised my seat. Slowing the aircraft had little affect on the windblast, but, as long as I leaned forward, the wind hit only my shoulders. Because it was very cold at altitude, I decided to return quickly to base, but I needed to watch my airspeed since the ejection had occurred.

The PCL says to fly less than 200 knots and 15,000 feet and to complete a controllability check for the loss of the canopy, but I never pulled out my PCL to reference it. I figured with the way my day was going, I'd probably just drop my PCL down an intake and complicate my problems. In retrospect, I should have requested my wingman break out his checklist and talk me through the steps. Though this practice of having a wingman assist is common in single-seat communities, Tomcat crews tend to forget this coordination technique is a viable option.

I did consider the controllability check, and I directed my wingman to check for damage to the vertical stabilizers—she found none. The faster I got on deck, the faster I would get warm.

I slowed to approach speed in 10-knot increments at about 3,000 feet AGL and had no problems handling the jet. As I approached the field, I was surprised at how quiet it got. The noise was only slightly louder than the normal ECS roar in the Tomcat. I'll admit I felt silly saying the landing checklist over the ICS when no one else was in the cockpit, but I didn't want to risk breaking my standard habit patterns.

The landing was uneventful, and, when I pulled back into the line, I was surprised to find how many people had come out to see the spectacle. The magnitude of the situation finally set in when my skipper gave me a hug after I got out of the jet.

The captain and I were very fortunate: All of the ejection and aviation-life-support-systems (ALSS) equipment functioned as expected. Our PR1 had taken the time to properly fit the captain, using components from three different sets of flight gear. This action caused a problem after the mishap—getting everyone's gear replaced—but it renewed my faith in our escape systems. A 48-year-old man ejected from the jet when it was inverted, at negative .5 G's, at 320 knots, and the only injuries he had were two minor cuts to his face.

After talking to the captain at the O'Club later that night, I realized I better could have briefed elements of the flight. Though I covered all of the details, I didn't fully consider his perspective. He said he didn't know where to put his hands. Consequently, he just left them in loosely clenched fists on his lap, about two inches away from the ejection handle. It never occurred to me that someone would not know what to do with his hands. Obviously, I fly with the stick and throttle in my hands 95 percent of the flight, but I failed to consider his situation.

The mishap board surmised that, during the inverted maneuver, he must have flinched when he slightly rose out of the seat and pulled the ejection handle. Now, before any brief, I try to place myself in the other person's shoes (even if they are black shoes) and imagine what the flight will be like for him. Whether it is the person who never has flown a tactical aircraft before or just the nugget pilot who never has flown with NVGs, remembering what it was like when I was unfamiliar with the environment will prevent this type of mishap from recurring.

Lt. Vickers flew with VF-123; he currently is an instructor with VFA-106

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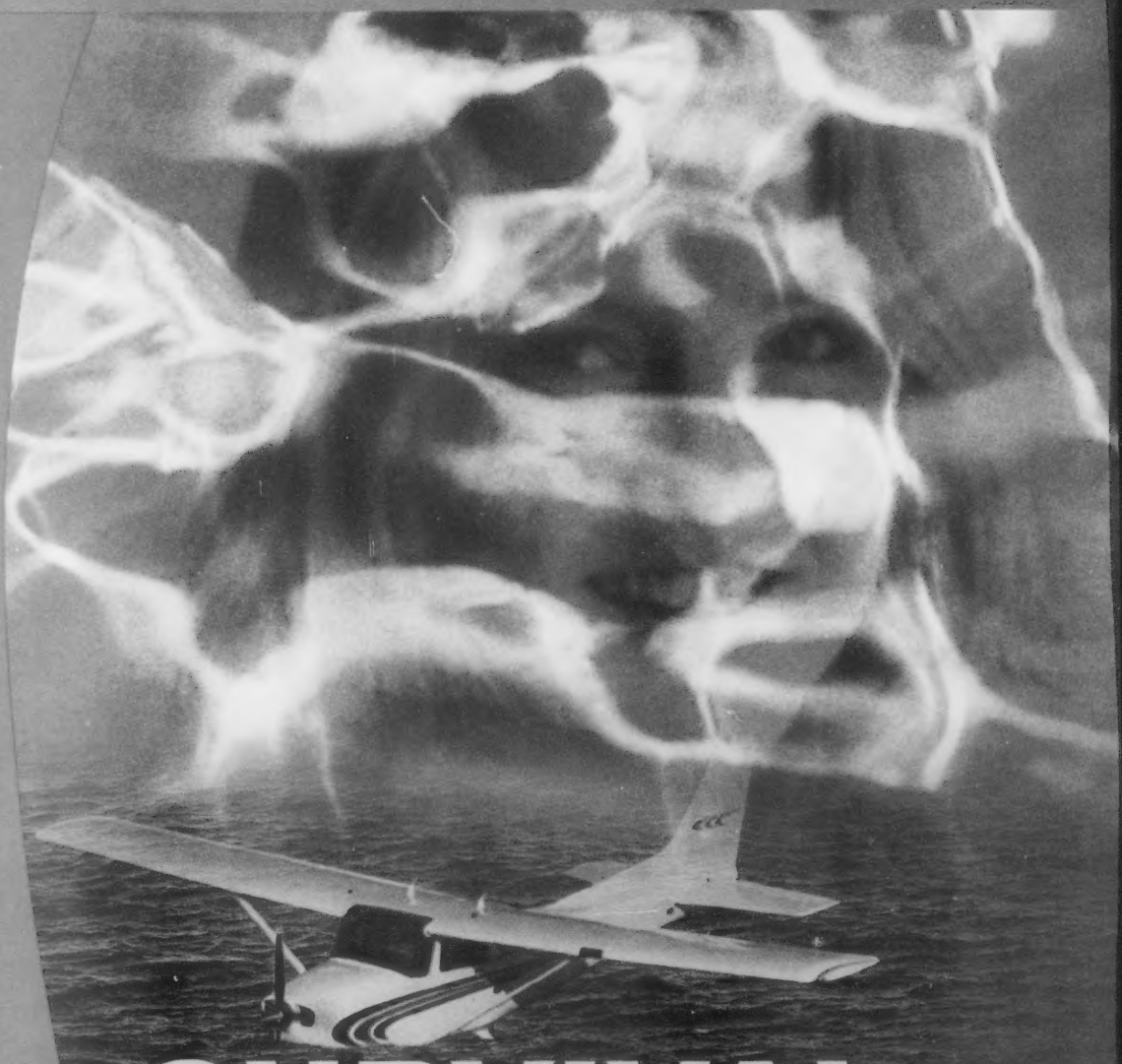
ORM Corner



SURVIVAL at Sea

A 15-Minute Flight Becomes an Incredible Survival Story.

ORM Corner

Please send your questions, comments or recommendations to:

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Naval Safety Center,
375 A St.,
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Are You Prepared for a Seven-Hour Swim in 59-Degree Water?

By PR2 Ronald Beermünder

The Coast Guard puts the life expectancy for swimming in 59-degree-Fahrenheit water at less than two hours. It' called hypothermia: Abnormally low body temperature, with slowing of physiologic activity.

Recently, I was asked to create a PowerPoint presentation for a guest speaker to use in sharing her water-survival story. I had heard bits and pieces of her story, which happened over 20 years ago, but I did not know enough about the incident to do a presentation. All I knew was "some 22-year-old woman had crashed her plane into the water and lived to tell about it." Now she was coming to NAS Pensacola to share her inspirational story with our new flight students.

I needed to do some journalistic investigation, or my PowerPoint efforts would suffer miserably. I called the guest speaker, whom I never had met, and asked her some questions. After several telephone conversations and seemingly endless e-mails, I knew more about the story. As I heard her story unfold, I couldn't help but think what I would have done in the same situation. Listening to her gentle voice telling horrific details of the crash, in her matter-of-fact tone, left me feeling inadequate and cowardly. Here is the story of Cathy Maready's survival at sea.

It was November 1981, a pitch-black, moonless night off the coast of South Carolina with an air temperature barely 50 degrees Fahrenheit. Cathy had spent the last three hours on Lady Island completing her final scuba class for certification. Instead of driving the 45 minutes home, she opted for a 15-minute Cessna flight. To save time, Maready decided neither to file a flight plan nor to use her radio. She took off from the small, uncontrolled airport on Lady Island and headed home.

She described the shine of the stars and the silence of the night to be one of the most beautiful experiences she could recall. Three miles from shore, the night grew more silent. The engine of her Cessna 152 had stopped hard and fast; the blade refused to turn. With more than 942 flight hours under her belt, a restart was routine to Maready. However, several attempts to turn over the engine failed; it had seized. She quickly prioritized procedures: aviate, navigate and communicate. She began her stalled descent and flawlessly landed the plane on the Atlantic Ocean. The communication would have to wait until sunrise.

"It was like landing on a pee-wee football field. It was short, and there were no lights. In order for me to land and take off, a local sheriff, who was in my scuba class, lit up the air strip with the spotlights from his patrol car.

"My first and immediate concern was landing the plane without cartwheeling into oblivion. I lucked out with a smooth stall above the water, and I was able to keep the plane level and the nose slightly up, as I plowed into the water."

She landed so smoothly the plane's emergency-locator transmitter (ELT) was not activated. Manual activation of the ELT would have required a journey to the rear storage compartment of the plane. With the cabin slowly filling with water and aviation fuel, that just wasn't going to happen. Maready tried several times to retrieve her dive gear, but the bag was lodged in the tight storage space behind her seat. Less than 30 seconds later, Maready was treading water as she watched the red beacon light of her tail rudder spiral deeper into the dark abyss.

Without a flight plan, without radio contact, and without a flotation device, Maready started swimming west, using Orion's Belt to guide her toward shore. The weight of her wet clothes felt as if they were pulling her under. Deciding to swim to shore rather than drown, Maready removed her shoes, her clothes, and even her wristwatch, which she could feel creating drag against the 59-degree-Atlantic current. It was 2200, and the tide was not in her favor. Her two-mile swim to land now had tripled against the outgoing tide. In the darkness, she barely saw her hands in front of her face. Thoughts of South Carolina's coast being second in the number of shark attacks only to Florida did not comfort her, and hypothermia was beginning to attack her body.

"Gradually, my body began to shiver. As the shivers worsened, I noticed my hands were becoming gnarled and stiff. I made myself keep moving, forced myself to keep up the swimming movements, but, even as I continued, I could feel my toes crossing, my feet arching and cramping into grotesque, fixed positions. It was my body, and what was happening to it terrified me."

Cathy Maready shared her survival story with the Pensacola audience.

Cathy Maready couldn't stop the thoughts of death from entering her mind, but she refused to give up the will-to-live.

"I thought it might be nice if I spent a little bit of the time I had left to say goodbye to my family and loved ones. I believe most people in survival situations would tend to cherish these times. For me, it was time well spent. As I was saying my good-byes, the water around me began to warm. My whole world began to seem warmer. It was invigorating just to think about my loved ones. I gained new energy, and my arms began to move again, very slowly, but still moving."

As Maready kept swimming, hallucinations of search boats, rescue helicopters, and sea monsters started to replace the darkness and silence of the night. She was exhausted but continued swimming, with the hallucinations beckoning her to stop. She wanted to stop and yell for help, but the mere thought of stopping made Maready feel as if she would sink like a stone.

She decided the next time she would stop swimming was when someone pulled her out of the water or when her feet touched the sand.

With what she describes as angels pulling her arms forward through the water and a renewed faith in her heart, Maready eventually reached shore, a grueling seven and a half hours after the crash.

"Finally, even as I mentally was preparing myself for death, I felt it. My knees were hitting a sand bar. I knew what it was, but I was too numb to stand. Almost ready to cry, knowing how close the shore was, I was forced to swim around the sand bar, out into deeper water, to reach dry land. Agonizingly, I kept going. My faith was pushing me; it was pulling me, carrying me to shore. It was daybreak before I made the beach. I still can hear the oyster shells cracking under my weight. I still can see the blood flowing from my cuts, but, at the time, I was too numb to feel a thing."

Maready was found staggering along the beach, suffering from shock and severe hypothermia. She spent the next three days in intensive care. When she recovered, specialists were called to review, in amazement, her medical charts. Chemicals in her body had built up so high from exertion they literally were off the scale. Three days later, she was released from the hospital.

Cathy Maready is now a successful interior designer in North Carolina. This past August, she shared her survival experience with flight students, flight surgeons, and survival-training instructors at the Naval Survival Training Institute (NSTI) and Naval Aerospace Medical Institute (NAMI) in Pensacola, Fla. Her survival story captivated the audience. She described the sequence of events before and after the crash, and she showed photos of her plane wreckage as recovered by a fishing trawler two years to the day after the crash.

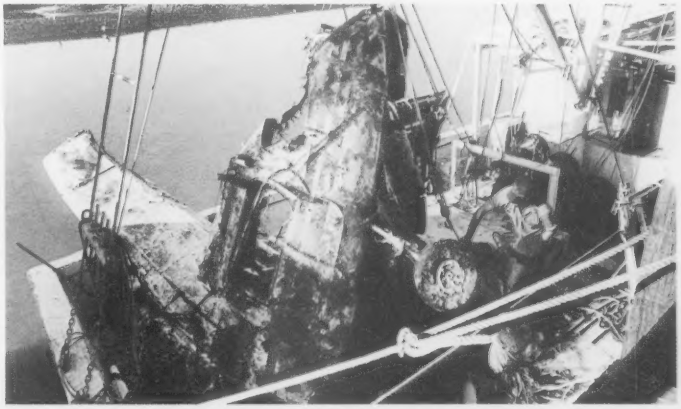
Every aviator who hears her survival story will remember it as one of strong character, deep faith, and an incredible will to live. The lessons learned never will be forgotten. NSTI has offered Cathy an open invitation to come back to Pensacola and share her story again. NSTI has displayed a framed storyboard in its main-lobby exhibition area dedicated to her story and to her honor, courage, and commitment.

Cathy Maready has graced the Navy with her story. Perhaps the Navy could lure her back to speak again by fulfilling her lifelong dream: an FA-18 flight with the Blue Angels.

NSTI postscript: Cathy Maready's story, while certainly amazing, also has some valuable survival lessons learned for all aircrew. Here are a few of those lessons:

- Be prepared. Don't rely totally on your will to live; rely on your training.
- Attitude. Remember, it can happen to you, and when all else fails, your will to live just might be your best asset.
- Knowledge. Know your survival procedures cold. You should be prepared to react, and you want your reactions to be good ones—based on proven survival procedures you've practiced.
- Wear proper clothing and equipment. Bring an exposure suit and a life preserver when the situation dictates.
- Have proper survival equipment. Include a life raft, an emergency-position-indicator radio (EPIR), and signaling equipment.
- File a flight plan. If nobody knows where you're going, you won't be missed. It's going to be very difficult to find you, when and if they finally realize you're gone.

PR2 Beermünder is a test and evaluation technician (human performance and training technology), at the Naval Survival Training Institute.



No-Brainer

By Lt. Russell Girty

I was the lead of a section of Hornets on another Operation Iraqi Freedom (OIF) mission. Since the "end of major conflict," the shooting had all but stopped for fixed-wing aircraft. We had provided "presence" on most missions, and, as a result, missions had become no-brainers.

Unfortunately, my day to learn a hard lesson about naval aviation had arrived. I remembered something about there being no such thing as a routine flight. I also recalled complacency was an issue, which even if you talked about it and were aware of it, still could get you. You have to beat back complacency on every mission.

Our mission was straightforward—the stars had aligned. We were launching Case I for a daytime, feet-dry mission, and it only got better from there. The plan was to get big-wing gas from a KC-10, and close the deal with a night trap on the pinky recovery (with a commander's moon)—it's great working ops.

I would not be writing this article if the event had been flown per the brief. Here's what actually happened. I manned up my FA-18A and was the first off cat 4. After the clearing turn, I leveled at 500 feet and accelerated to 300 knots. At 10 miles, I started my outbound climb and, at that instant, felt a not-too-unusual thump. My first thought was I had flown through jet wash from another aircraft. The radar picture was clean; I didn't see any traffic. My next thought was I had taken a bird, but I hadn't seen a bird in months in the Gulf, so I didn't think that could be the problem. Besides, birds are too smart to fly when its 120 degrees. A check of the engine instruments showed nothing. I decided to press on.

About 10 seconds later, a series of thumps reverberated throughout the jet. I could feel the thumps in my seat. I never had had a compressor stall in a Hornet before, but I was certain that's what was happening. Immediately, I got on the auxiliary radio to get the spare launched and began turning back toward the boat.

I hadn't received voice warnings or cautions on the DDI, so I couldn't tell which engine was chugging. A few seconds later, however, I got an "engine right" voice warning, but still nothing showed on my DDI. I trusted the aural warning and pulled the right throttle to idle, which stopped the stalls. I called tower and told them I'd like to land this recovery. I would need a half-flaps, straight-in approach as a precaution (if the engine failed, I'd be in the single-engine-landing configuration).

Paddles was listening and asked what the plan was for the chugging engine. I told him I planned to use the engine for landing as long as it wasn't stalling. I also told the squadron rep in the tower the same information. The rep and I talked about the hydraulic system that powers the landing gear and brakes and is associated

About 10 seconds later, a series of thumps reverberated throughout the jet. I could feel the thumps in my seat.

with the right engine. If the engine failed, I needed to blow down the gear, and then I would need a tow out of the landing area.

I already had begun to adjust the gross weight. I continued to get set at 1,200 feet, 10 miles aft of the carrier. I started inbound with 1,000 pounds of fuel left to dump to reach max trap of 33,000 pounds. Much to my surprise after dirtying-up, I could not maintain on-speed. Since this was an OIF mission, I was configured with three drop tanks, two GBU-12s, two AIM-9s, and a TFLIR.

The jet continued to slow below on-speed; OK, a little burner would fix that. Then I remembered the NATOPS caution that says, "Simultaneous selection of fuel dump and afterburner during high AOA maneuvering may cause fuel to ignite." I deselected afterburner. The two seconds I had selected afterburner got me the needed energy, so I continued the approach. At three miles, paddles said we had the winds for a half-flap approach. I reminded him I would marry up the throttles at the ball call. At three-quarters mile, I brought up the right throttle, and the jet again had compressor stalls. I brought back the throttle and told paddles I would be single engine on the ball. After a low, lined-up-right start, with a couple of power calls, I got the jet on deck.

During the postflight inspection, maintainers found that FOD had damaged the starboard motor. Every first stage blade was nicked or bent. Our best guess was the motor ingested the FOD on the catapult stroke. When I got to the ready room, many personnel, including those from the tower, told me they thought they had seen sparks coming out of a motor, as well as an afterburner blowout that had relit. In the end, I had run a FOD-damaged motor for more than 15 minutes. Fortunately, the GE 404-400 is a great engine, and this situation didn't end up with a catastrophic engine failure.

Like most naval aviators, the other thing we did was evaluate everyone's performance during this situation. We did most things well, but, as always, we can tighten up on procedures and our mindset.

We were six months into an eight-month cruise, and I had a little "been there, done that" attitude. If things had gone as briefed, it should have been a fun flight and a routine landing aboard mom. What is most amazing is we just had discussed complacency at an AOM; I was complacent during that discussion. I guess the old guys know this is an issue; we need to be careful not to drop the pack before the jets and all the people are back at home plate after deployment.

I stuck to the fundamentals of aviate and navigate by climbing and turning back toward the ship. However, the next step, communicate, meant I should have told the ship about my situation and let them worry about launching the spare, while I talked to a squadron rep and started handling my emergency. You must focus on the closest alligator to the canoe, which, in this case, was landing the aircraft; launching the spare was secondary to the problem at hand. An approach to the ship with one motor at idle, even with plans to use it, still is a single-engine approach.

Ultimately, we did the correct procedures, but our CRM between the squadron rep in the tower and the emergency aircraft could have been better: making sure we covered all the items I had not memorized. All Hornet drivers know you will be half flaps on a single-engine approach, even if you are going to use both engines. However, all the NATOPS steps, including warnings and notes, need to be read. Single-engine-failure notes in the landing configuration reveals that adjusting gross weight, at or below recommended weight, ensures less than 50 feet of altitude is lost during an on-speed AOA/on-glide-slope condition. If I had known that, I would have expected the settle and would have known I needed afterburner to dig me out of a hole.

We met the requirements of 33,000-pounds max trap for a half-flap approach, but we did not consider the atmospheric conditions. The Arabian Gulf on a hot, humid, summer day, single engine, is no place to be trolling around at max trap. A look in the big book shows we could have adjusted the gross weight considerably lower and still had fuel for a bingo. This action also would have eliminated the continued deceleration of the aircraft past on-speed AOA, and again eliminated the need for afterburner.

Lt. Girty flies with VFA-97.

Update of the Online
Command Safety Climate Assessment
Survey Process

By Dr. Robert Figlock, LtCol., USMC Ret.

Background

Approach magazine published the article "Taking the 'Safety Pulse' of Your Squadron," in the March 2002 issue. That article introduced naval aviation to the Command Safety Climate Assessment (CSCA) survey process—a web-based tool for commanding officers to survey aircrew and maintainers on their perceptions regarding safety issues within their unit. This tool allows a CO to identify human-factor issues and intervene before an adverse occurrence.

Three on-line surveys are available: (1) Command Safety Assessment (CSA) survey, which assesses an organization's operational practices from an aircrew's perspective, (2) Maintenance Climate Assessment Survey (MCAS), which assesses an organization's maintenance practices from a maintainer's perspective, and (3) NADEP Maintenance Climate Assessment Survey (MCAS), which assesses NADEP's maintenance practices from a depot-level artisan perspective.

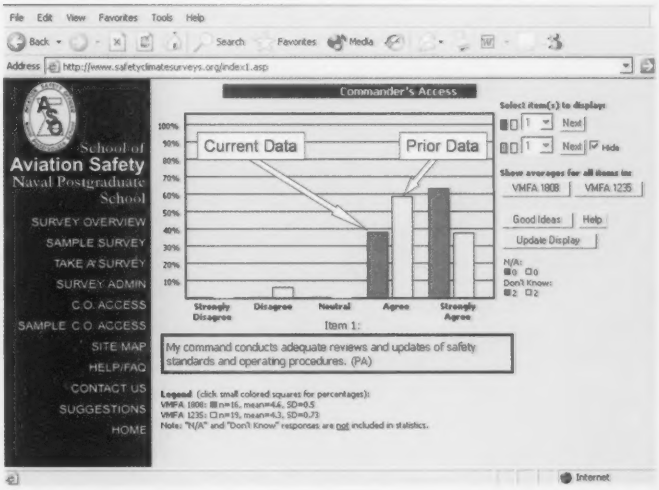
Each survey takes approximately 15 minutes per person to complete. To date, over 69,000 naval aviation personnel have taken the surveys.

The CSCA survey process is based upon the notion of high reliability organizations (HRO), and their ability to reduce risk during hazardous operations. Using HRO principles, CSCA surveys assess an organization's ability to conduct flight operations and maintenance in terms of leadership, culture, standards, policies, procedures, and practices. Attributes of the CSCA survey process include: ease of use, 24/7 Internet accessibility in a nonintrusive environment, participant anonymity, unit confidentiality, and the ability to compare the unit results with other aggregate organizational data. Feedback immediately is available to the CO upon completion of the survey process. Higher-headquarters commanders also can access survey data for comparing aircraft types and communities while still maintaining unit confidentiality. The CSCA website may be viewed at: http://www.safetyclimatesurveys.org.

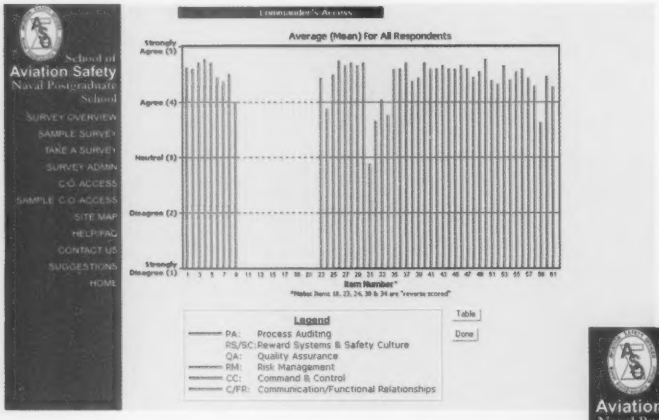
CSCA Survey Process Update

The Deputy Assistant Secretary of the Navy (Safety) and the Safety Division at Headquarters, Marine Corps, recently funded the School of Aviation Safety to upgrade the CSCA survey process. Upgrades were based on inputs from CSCA survey respondents and fleet commanders, and include enhanced speed, clarity, and user-friendliness of the website. A few of the enhanced capabilities available to commanders include:

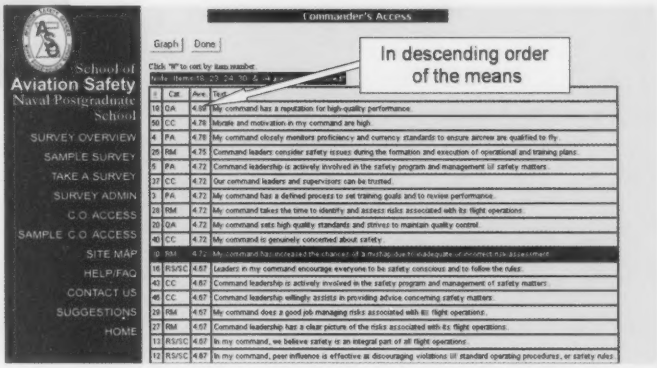
1. Comparison of a unit's survey results with their prior results. For example, comparing aircrew-survey results at mid-deployment with the results generated when the CO first assumed command of the unit.



2. Ability to display the mean (average) values of all survey items on one computer screen.



3. Access to a table listing each survey item and its corresponding mean value. Survey items can be listed in order (i.e., 1, 2, 3, 4...), or by their mean values. Until now, a minimum of five CSA responses or 20 MCAS responses was required before data could be displayed in the CO access module. These minimums were set to help protect the anonymity of individuals taking the survey. These thresholds made survey use impossible for small detachments with insufficient personnel to meet the minimums. The thresholds can now be adjusted (on a case-by-case basis) for small detachments to allow det OinCs the ability to use this safety tool while deployed, yet still maintain the anonymity of survey respondents.



Other enhancements include: an improved on-line help menu, the addition of warrant officer ranks in the surveys' demographics section, and identification of the HRO model component listed after each survey item. These and other, less visible upgrades provide survey users an improved system for taking the "safety pulse" of your squadron.

Future of the CSCA Survey Process

Fleet interest in this safety tool is high. A derivative of this tool is now being implemented in the surface Navy. The Marine Corps is expanding its survey use for their ground warriors and off-duty activities. Other services are looking at employing it within their unique domains. Most importantly, with recent funding from Commander Naval Air Force (CNAF), additional upgrades and continued service of this on-line safety process are assured. Future upgrades to the system include a version for use by squadrons with contract maintenance.

Requesting the CSCA Survey

COs and detachment OinCs should have their safety officer contact the School of Aviation Safety, Naval Postgraduate School at (831) 656-2581 (DSN 756). The unit safety officer supervises the survey and must identify how many aircrew (CSA) and maintainers (MCAS) will take the survey. Once a set number of surveys (minimum 66 percent is recommended) are completed, the CO receives a password to access the unit's data online and compare them with other survey data. Higher headquarters can contact the Safety School to gain access to the aggregate database. Additional information on the CSCA survey process can be obtained by contacting the Safety School or at: http://www.safetyclimatesurveys.org.

The March 2002 *Approach* article can be viewed online at: http://safetycenter.navy.mil/media/approach/issues/mar02/taking.htm.

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